HT-18 Standardization Training

TH-57 Autorotation
Variables and Procedure Review

January 20th, 2015

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LT Johnny "Dozer" Kane- "B" Stage Stan
LT Cole "Fancy" Weideman – Form Stan
Capt Ryan White- Night Tactics Stan
LT Brendan McGunigle – Low Level Stan / Training Officer

Reference

- NAVAIR 01-H57BC - NATOPS
- CNATRA P-457 – CONTACT FTI
- COMTRAWINGFIVEINST 3710.8S – RWOP
- CNATRA P402 (Rev. 04-11) – Systems Workbook
- OH-58 Flight Manual

Objectives

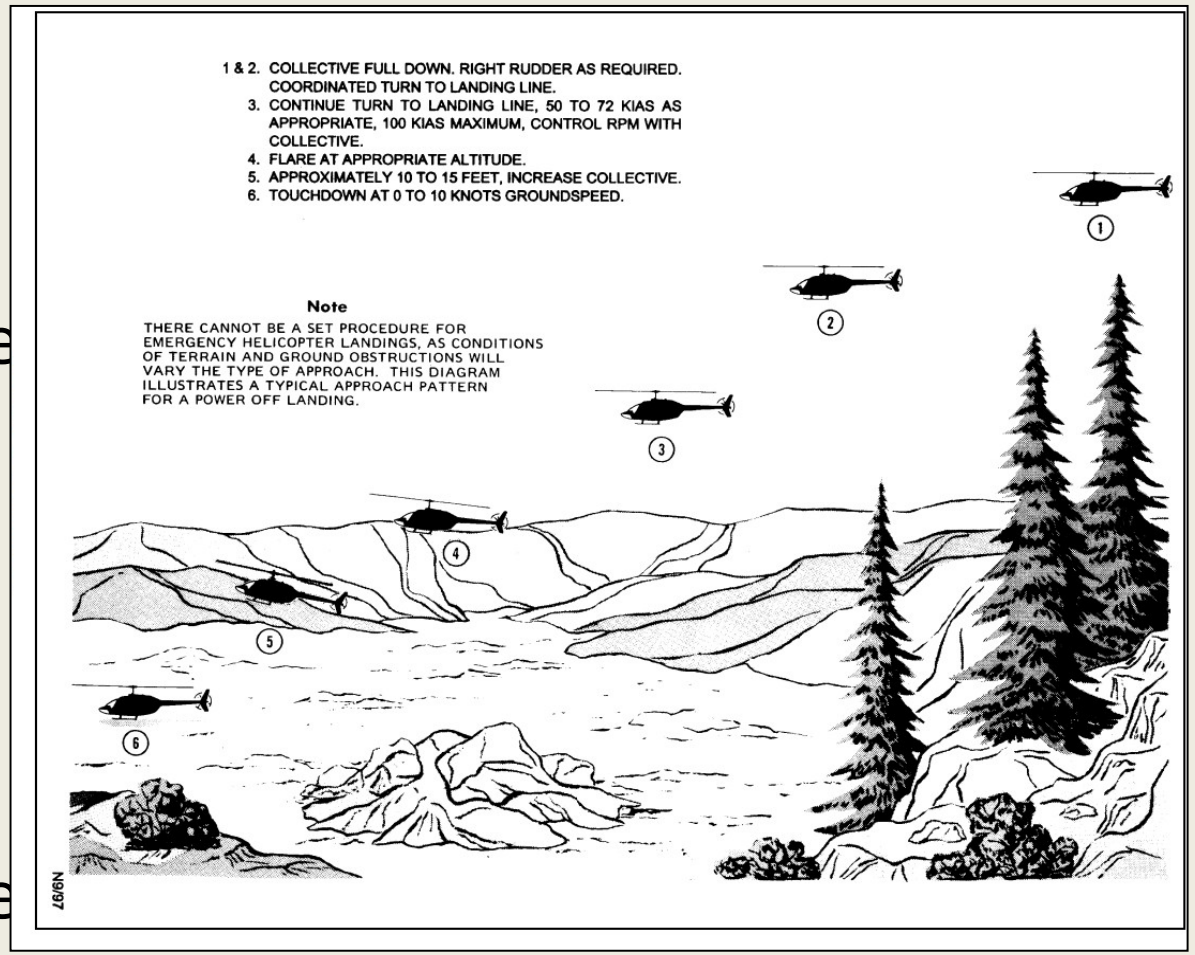
- Review autorotation variables.
- Drive a discussion of autorotation standards in training and associated techniques for instruction.
- Provide expectations of making fields.
- Identify not often discussed hazards.
- Review course rules North of Tree Field.

Outline

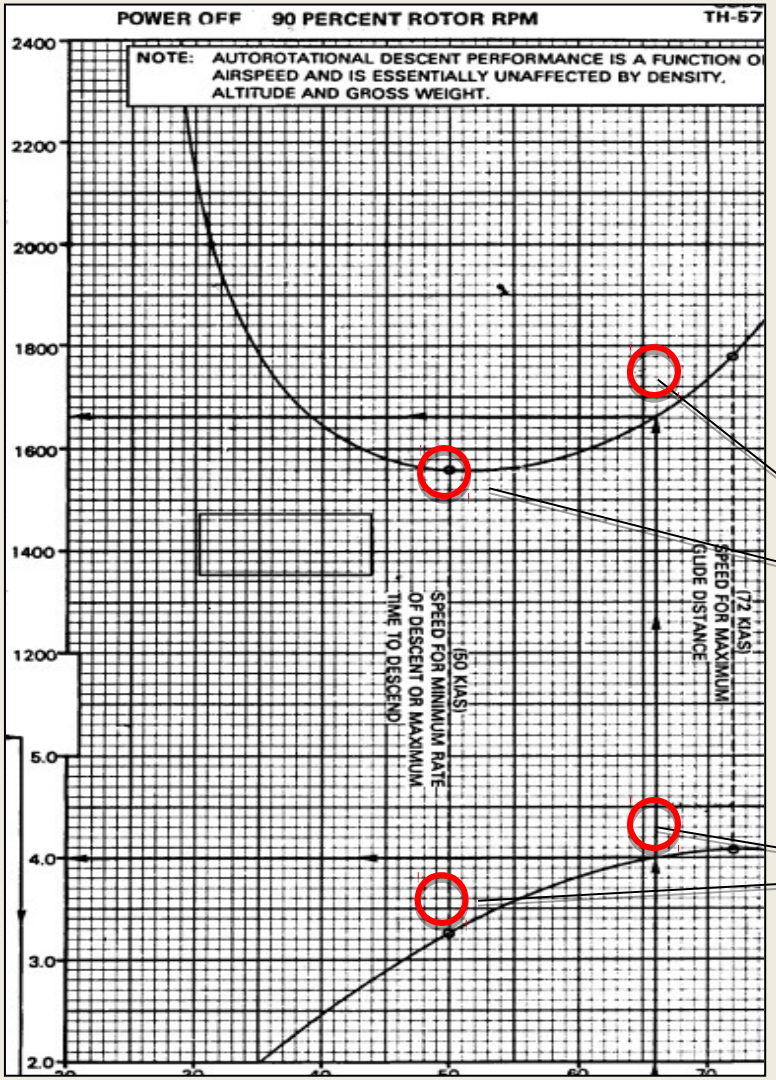
- Auto Variables Review
- Auto Geometry
- FTI Procedures
- First Auto
- Other Hazards
- Make the Field
- North of Tree Field Course Rules

Variables

- Controlled
  - Airspeed
  - Nr
  - Reaction Time
- Uncontrolled
  - Gross Weight
  - DA
  - Wind
  - Temperature
  - Reaction Time


1 & 2. COLLECTIVE FULL DOWN. RIGHT RUDDER AS REQUIRED. COORDINATED TURN TO LANDING LINE.
3. CONTINUE TURN TO LANDING LINE, 50 TO 72 KIAS AS APPROPRIATE, 100 KIAS MAXIMUM, CONTROL RPM WITH COLLECTIVE.
4. FLARE AT APPROPRIATE ALTITUDE.
5. APPROXIMATELY 10 TO 15 FEET, INCREASE COLLECTIVE.
6. TOUCHDOWN AT 0 TO 10 KNOTS GROUNDSPEED.
Note
THERE CANNOT BE A SET PROCEDURE FOR EMERGENCY HELICOPTER LANDINGS, AS CONDITIONS OF TERRAIN AND GROUND OBSTRUCTIONS WILL VARY THE TYPE OF APPROACH. THIS DIAGRAM ILLUSTRATES A TYPICAL APPROACH PATTERN FOR A POWER OFF LANDING.
1
2
3
4
5
6
N9/97

TH-57 Glide Characteristics



FTI vs. NATOPS

- FTI:

  Nr maintained at or above 94% => Larger ROD & GS.

- NATOPS:

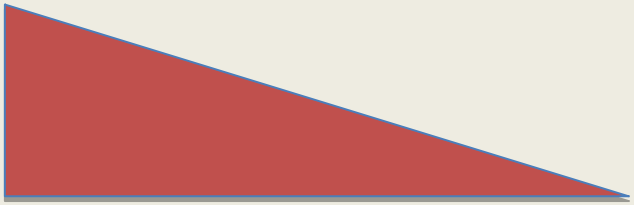
  Assumes 90% Nr

Rate of Descent:
1360 fpm (50kias)

Glide Ratio:
3.3 (50kias)

Auto Geometry

50 KIAS



Glide Slope Ratio: 3.25

19 DEG

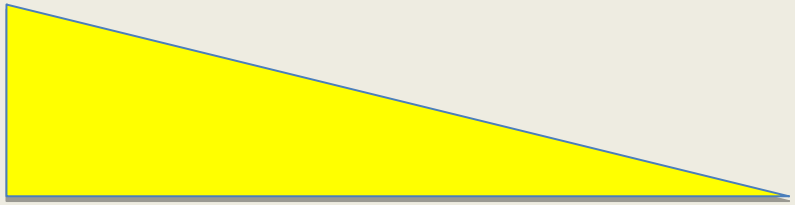
600’ AGL = 1,950’ OTG

(0.37 Miles)

300’ AGL = 975’ OTG

(0.18 Miles)

72 KIAS



Glide Ratio: 4.08

14 DEG

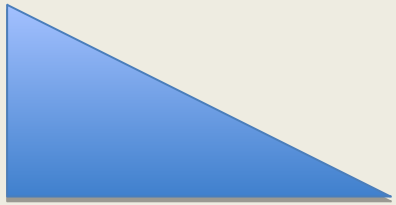
600’ AGL = 2,448’ OTG

(0.46 Miles)

300’ AGL = 1224’ OTG

(0.23 Miles)

Normal Approach Geometry



Glide Slope 2:1

600’ AGL = 1200’ (.23 Miles) OTG

300’ AGL = 600’ (.11 Miles) OTG

Entry

FTI

- 70 KTS / 600’ AGL
- Enter the autorotation by smoothly lowering the collective to the full down position and simultaneously adding right pedal to maintain balanced flight. Reduce twist grip to the flight idle position and turn to the course line.

Verbals

PAC: “Lane, Lock, Sock”

PAC: “Altitude 600 FT, 70 KIAS, VSI AT OR BELOW ZERO, AIRCRAFT IN TRIM”

PAC: “Down, Right, IDLE, Turn.”

Transition to Final

FTI

- Transition to 50 to 60 KTS descending attitude. Monitor Nr and control between 90 and 107 % with collective (optimum 94 to 95%).

NATOPS

PAC: “Attitude, Nr, Ball”

Final

FTI

- Intercept the course line and establish crosswind correction as necessary. Maintain the 50 to 60 KTS descending attitude.
- Ensure Collective is full down by 150 feet AGL

Verbals

PAC: “200’ On Courseline”

PAC: “150’ Collective Full Down”

Flare

FTI

- At 75 to 100’ AGL flare with cyclic in order to reduce rate of descent, reduce groundspeed, and increase Nr.
- Adjust flare as required to achieve desired groundspeed and minimal rate of descent.

Verbals

Power Recovery

PAC: “100’ Flare, Twist Grip Full Open”

PNAC: “Roger Twist Grip Full Open”

Full Auto

PAC: “100’ Flare,Twist Grip Flight Idle.”

PNAC: “Roger, Twist Grip is Flight Idle”

Recovery

FTI

- 10 to 15’ AGL, coordinate up collective and forward cyclic to slow the rate of descent and lower the noce to level attitude. Maintain heading with the pedals.

Verbals

PAC: “10-15’ Pull, Pause, Level”

<u>Power Recovery</u>

PAC: “5’ Taxi, Taxi, Taxi”

<u>Full Auto</u>

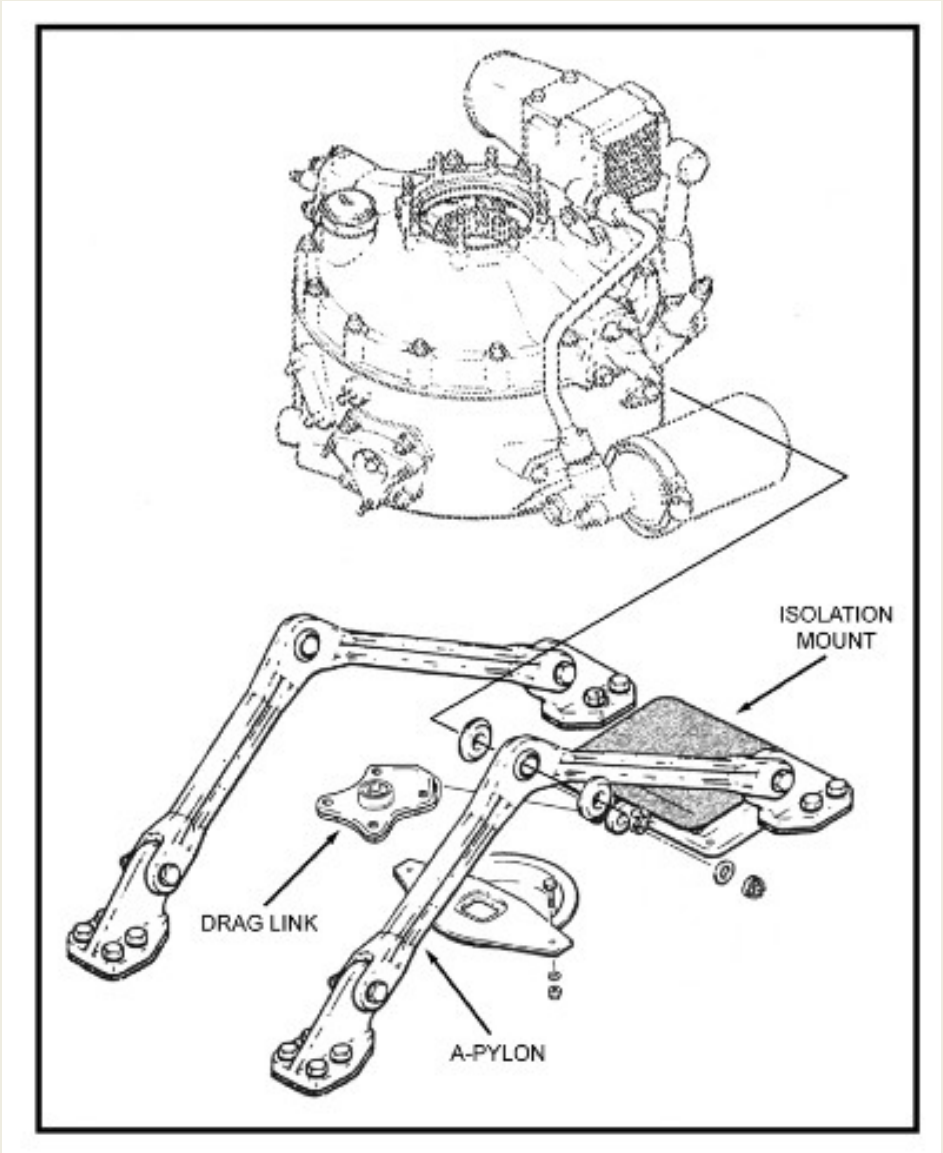
PAC:“5’ Cushion, Cushion, Cushion.”

Low Rotor RPM Recovery

At 15 to 20’, crack open the throttle slightly, lower the nose toward a level attitude and simultaneously increase the collective, bleeding rotor rpm no lower than 90%; smoothly rotate the twist grip to the full open position.

Hazards

- Spike Knock
  - Low RPM,
  - Poor Auto Landing,
  - Low G (+.5)
- Pylon Whirl
  - Blade Flapping/Mast Bumping.
  - Touchdown after an Auto
- Tailboom Dynamic Modes
  - Touchdown after auto (~64% N%)
  - Highspeed auto (68-73%Nr)



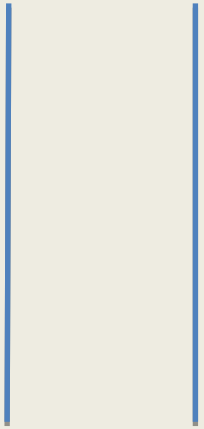
First Auto

- Controlled
  - Airspeed
  - Nr
  - Trim
  - Reaction Time
- Uncontrolled
  - Gross Weight
  - DA
  - Wind
  - Temperature

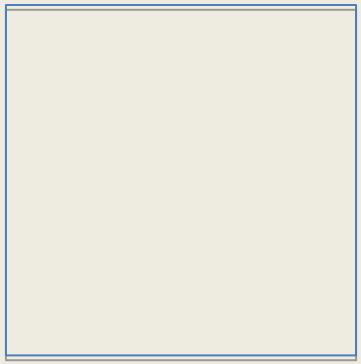
- Self Critique
- Debrief:
  - Conditions
    - DA Effects
    - Winds
  - Flare
  - Pull

Aim Points

- RWOP 3-6 para 3.5 #5 : Practice autorotations to a specific **point** are prohibited.
- Webster. A **point** is geometric element that has zero dimensions and a location determinable by an ordered set of coordinates



Lane
1500x400’



Landing
Area/Zone
200x200’

Point
Undefined Size

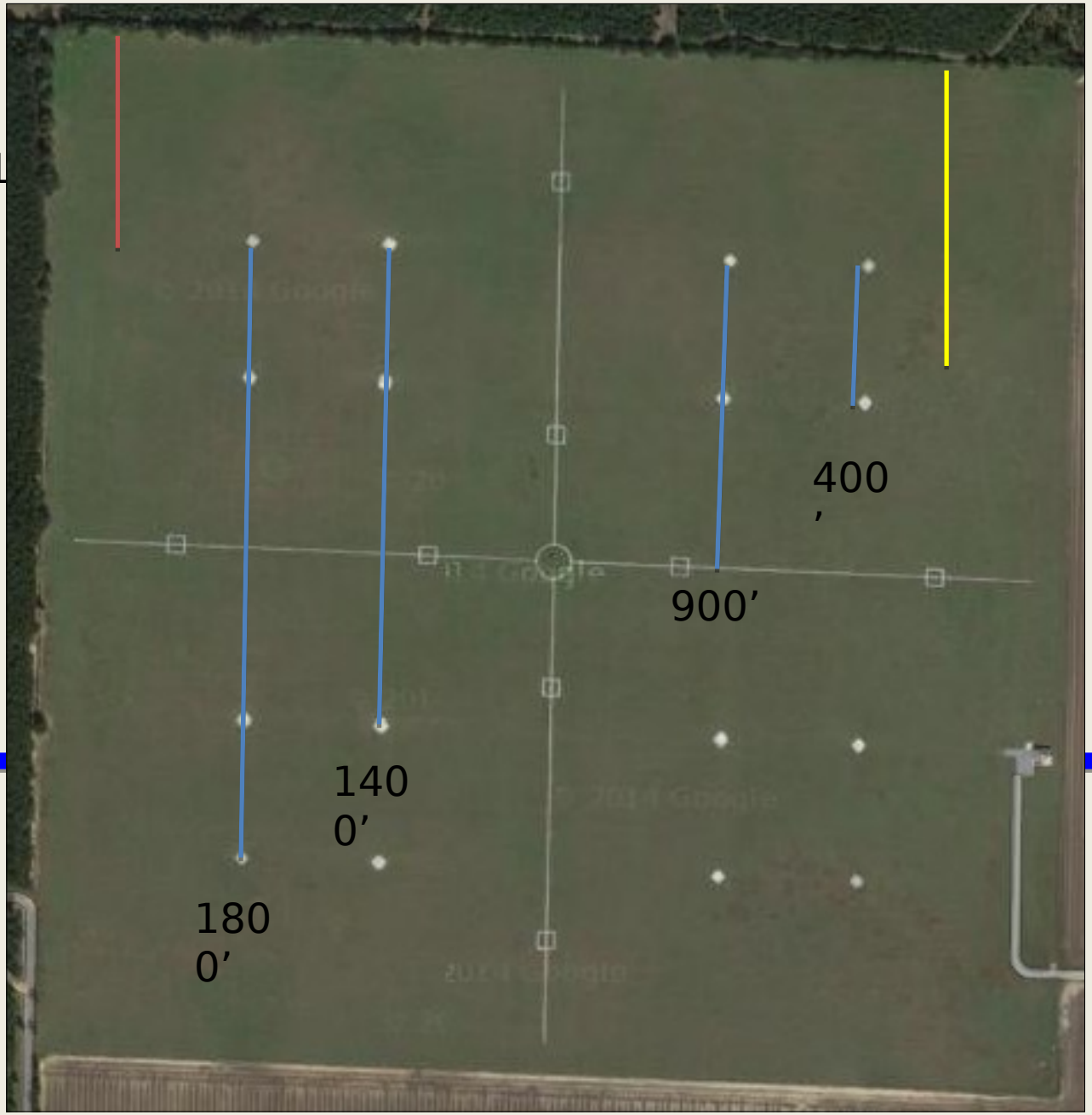
Auto @ 200’ AGL

Calculated at 90% Nr	50 KIAS Min Descent	72 KIAS Max Glide
Glide Slope	3.25	4.08
Distance OTG (Ft)	650	816
Rate of Descent (FPM)	1558	1780
Time (Sec)	7.7	6.7

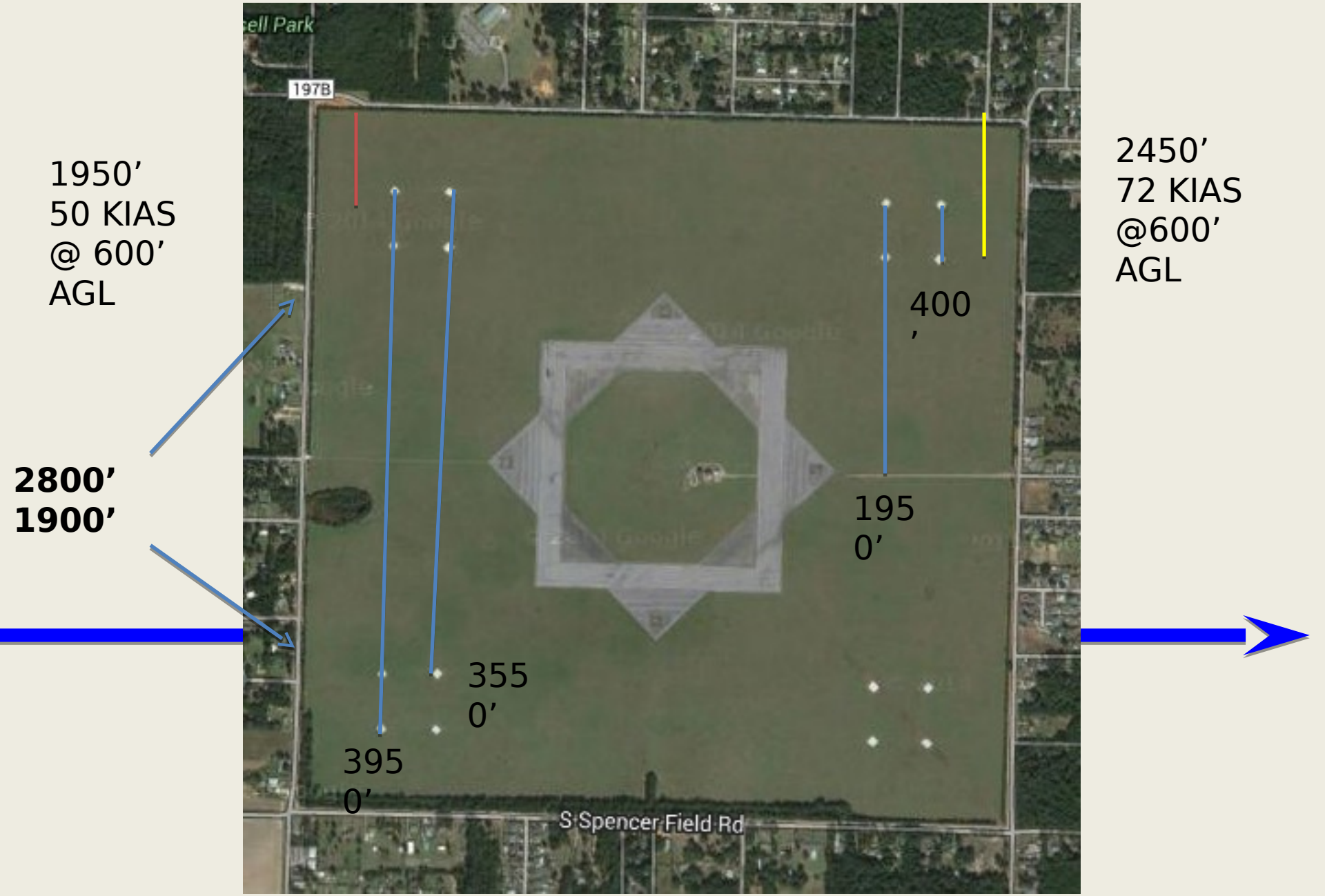
*Does not account for flare. Expect longer distances at higher airspeeds.

650’
50 KIAS
@ 200’ AGL

816’
72 KIAS
@200’
AGL

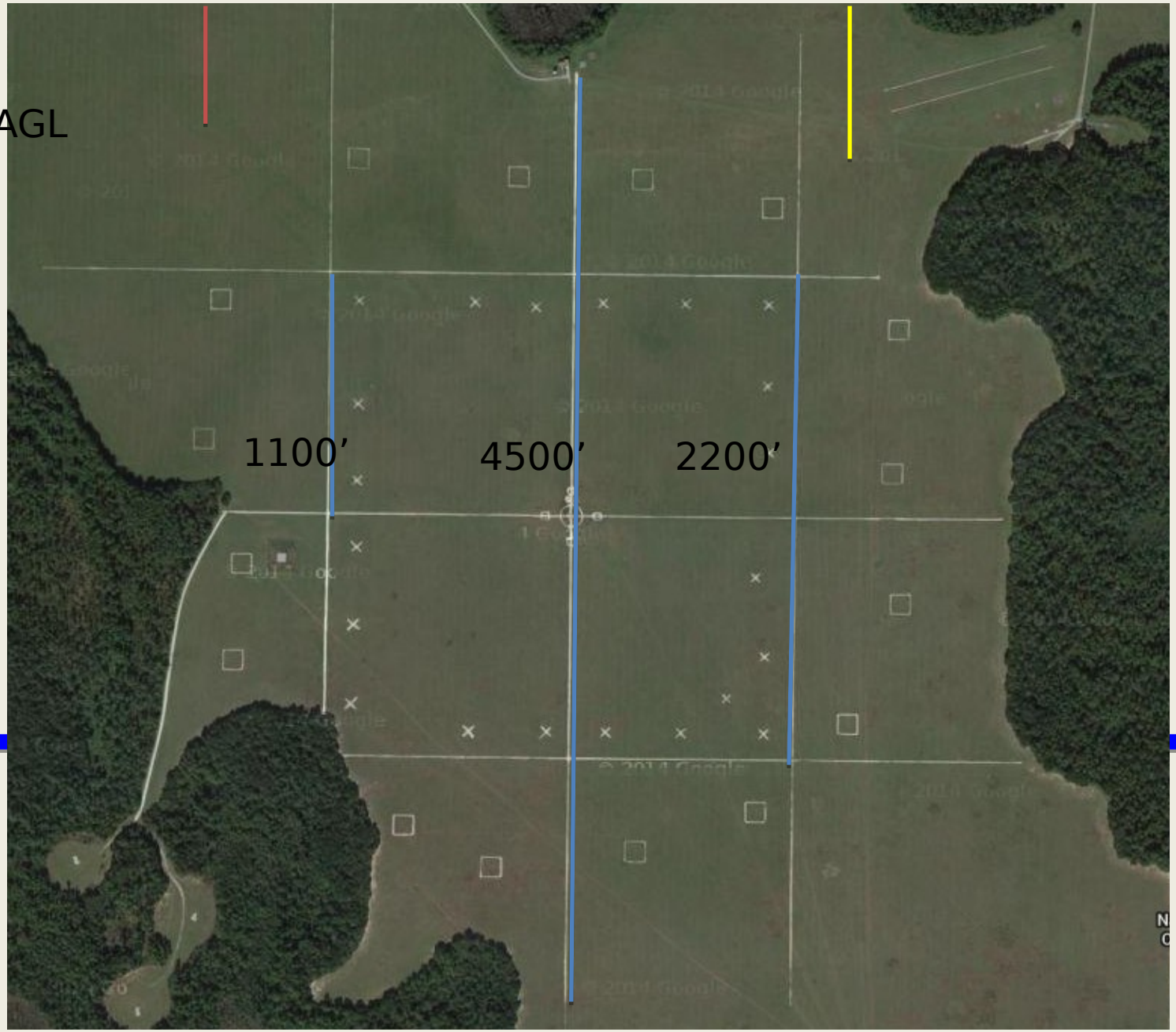


ell Park
197B
S Spencer Field Rd


1950’
50 KIAS
@ 600’
AGL
2800’
1900’
2450’
72 KIAS
@600’
AGL
400
’
195
0’
355
0’
395
0’
197B
S Spencer Field Rd

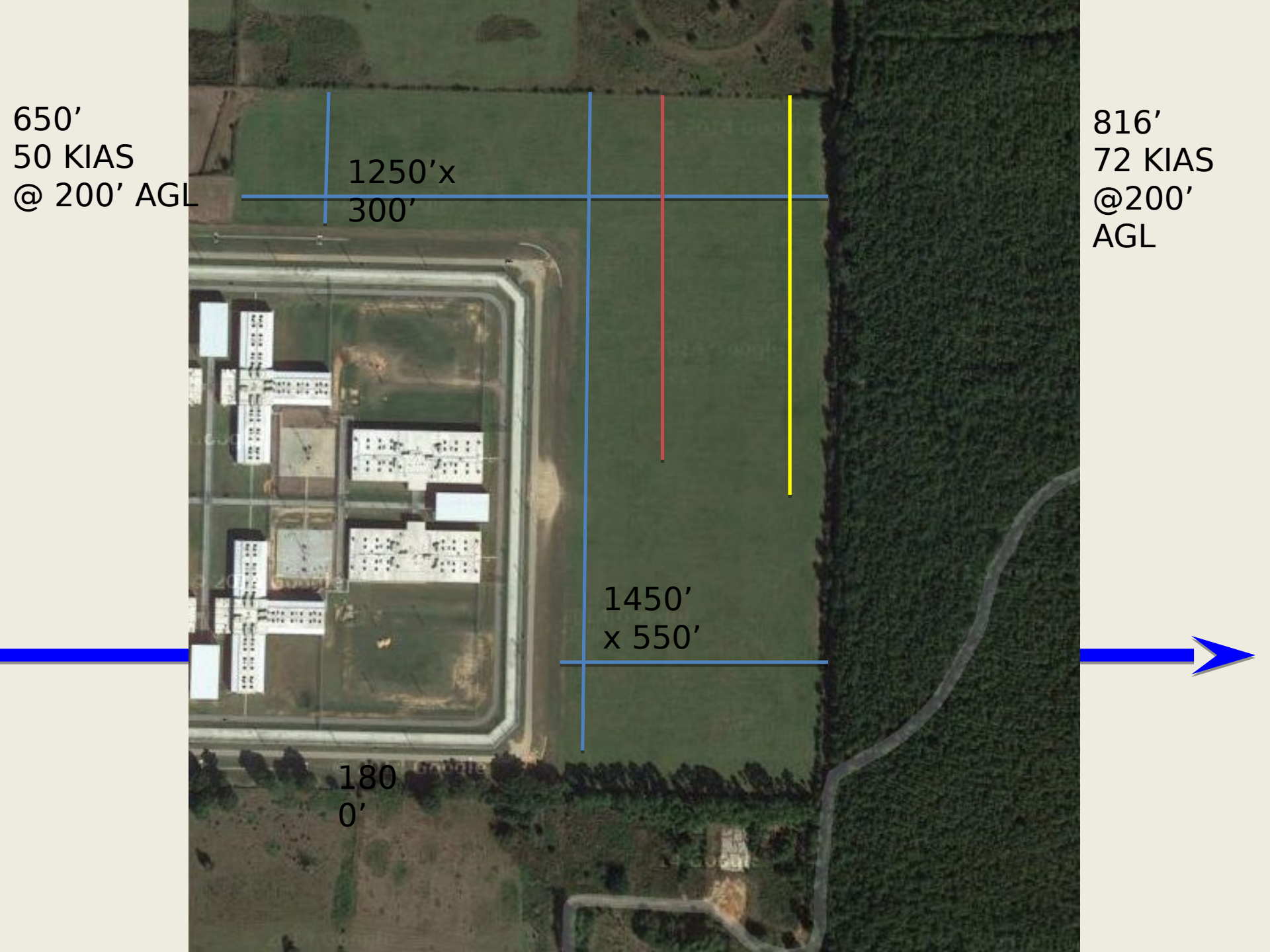
650’
50 KIAS
@ 200’ AGL

816’
72 KIAS
@200’
AGL

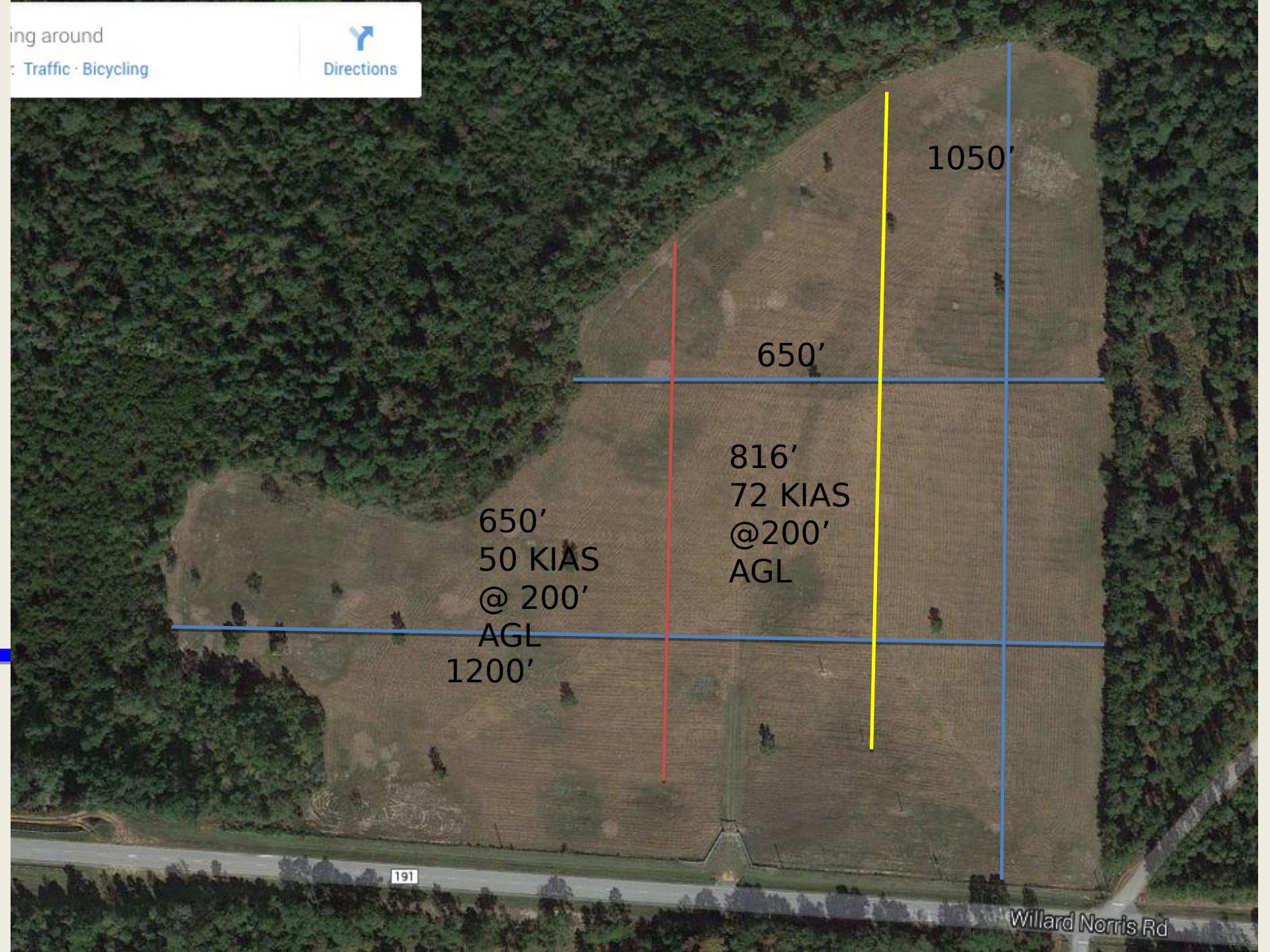


+Brian
1
Santa Rosa Nolf Airfield
Farm Life Rd
Explore

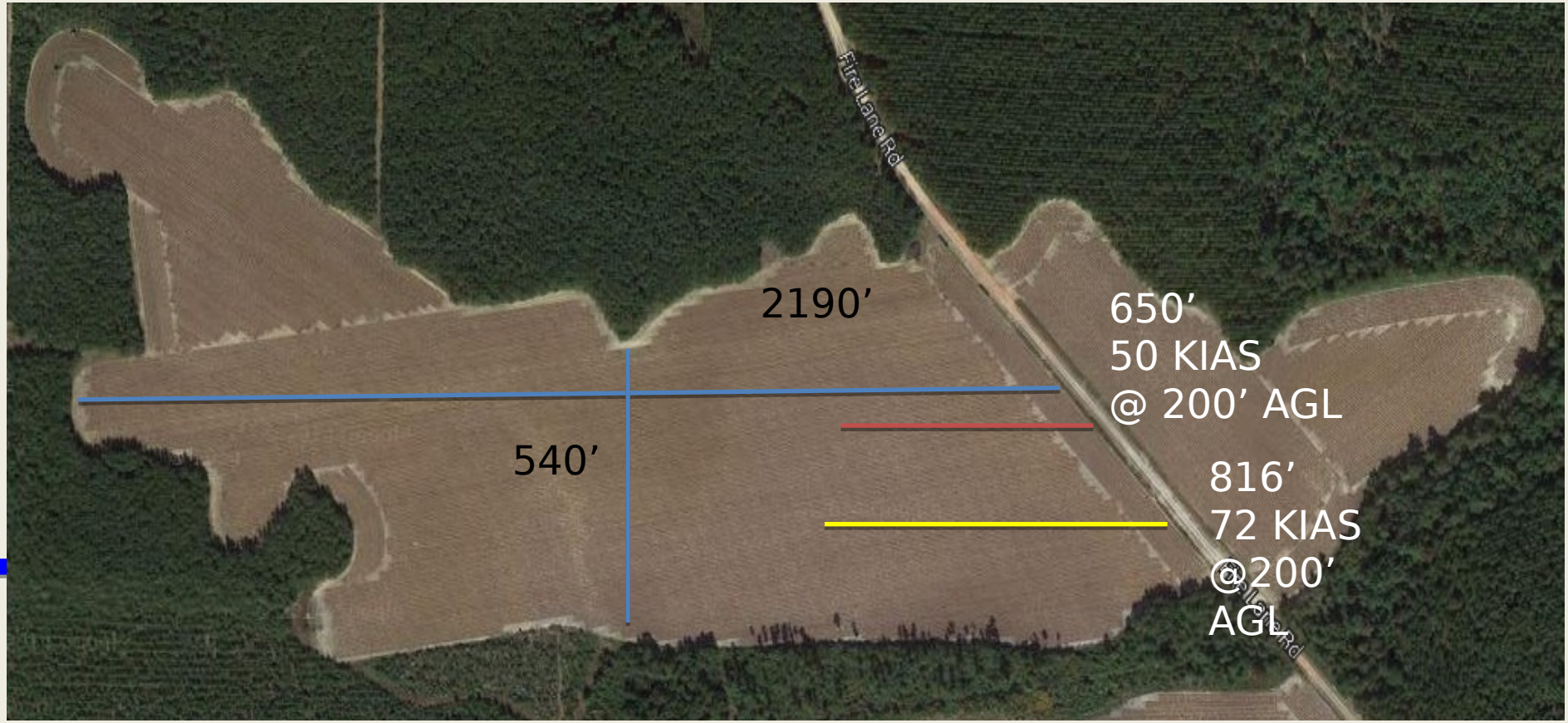
816’
72 KIAS
@200’
AGL
1000’
650’
50 KIAS
@ 200’
AGL
500
’
1900’
500’
Santa Rosa Nolf Airfield
Farm Life Rd
+Brian
Explore


650’
50 KIAS
@ 200’ AGL
1250’x
300’
816’
72 KIAS
@200’
AGL
1450’
x 550’
180
0’

ing around
Traffic · Bicycling
Directions
191
Willard Norris Rd


ing around
Traffic · Bicycling
Directions
1050’
650’
816’
72 KIAS
@200’
AGL
650’
50 KIAS
@ 200’
AGL
1200’
191
Willard Norris Rd

Fire Lane Rd
Fire Lane Rd


Fire Lane Rd
2190’
650’
50 KIAS
@ 200’ AGL
540’
816’
72 KIAS
@200’
AGL
Fire Lane Rd

Conclusion

- Know your variables.
- Instruct to the variables for that day.
- Relate FTI procedures through technique.
- Make the Field, Calibrate your eyes.

Questions?

- Future Auto Fly Day March/April Time Frame

HT-18 Standardization Training

North of Tree Field

No longer the wild west…

20 January 2015

LT Jonny "DOZER" Kane
CAT 1 STAN O

North of Tree Field

Why?

- At least 17 HAZREPs documenting “slow to spool” events
- Causal factor in recent Class-B mishap
- The fields in the channel suck
- Tree Field unavailable for simulated engine failures at altitude

R+I 14-17 (Dated 14 NOV 14)

- This is how we do it now
- Clarifying wave-off procedures

North of Tree Field

Proficiency:

- When was the last time you flew a full auto?
- Are you targeting specific areas or the “field” in general or rolling it to Flight Idle and hoping for the best?
- Are you sure you can make the field?
- If you are not confident, snivel for a QIP in a Bravo or with someone who is comfortable operating up there

North of Tree Field

Normal flow of traffic… or “The Loop”

- Fly North from Tree Field to Pistol Field
- East to Antenna Field
- South to Utah Field
- West to intercept the power lines and then turn south
- When abeam Tree Field, turn west to split Tree Field
- Don’t worry there will be a picture soon…
- Peanut field is not a thing…

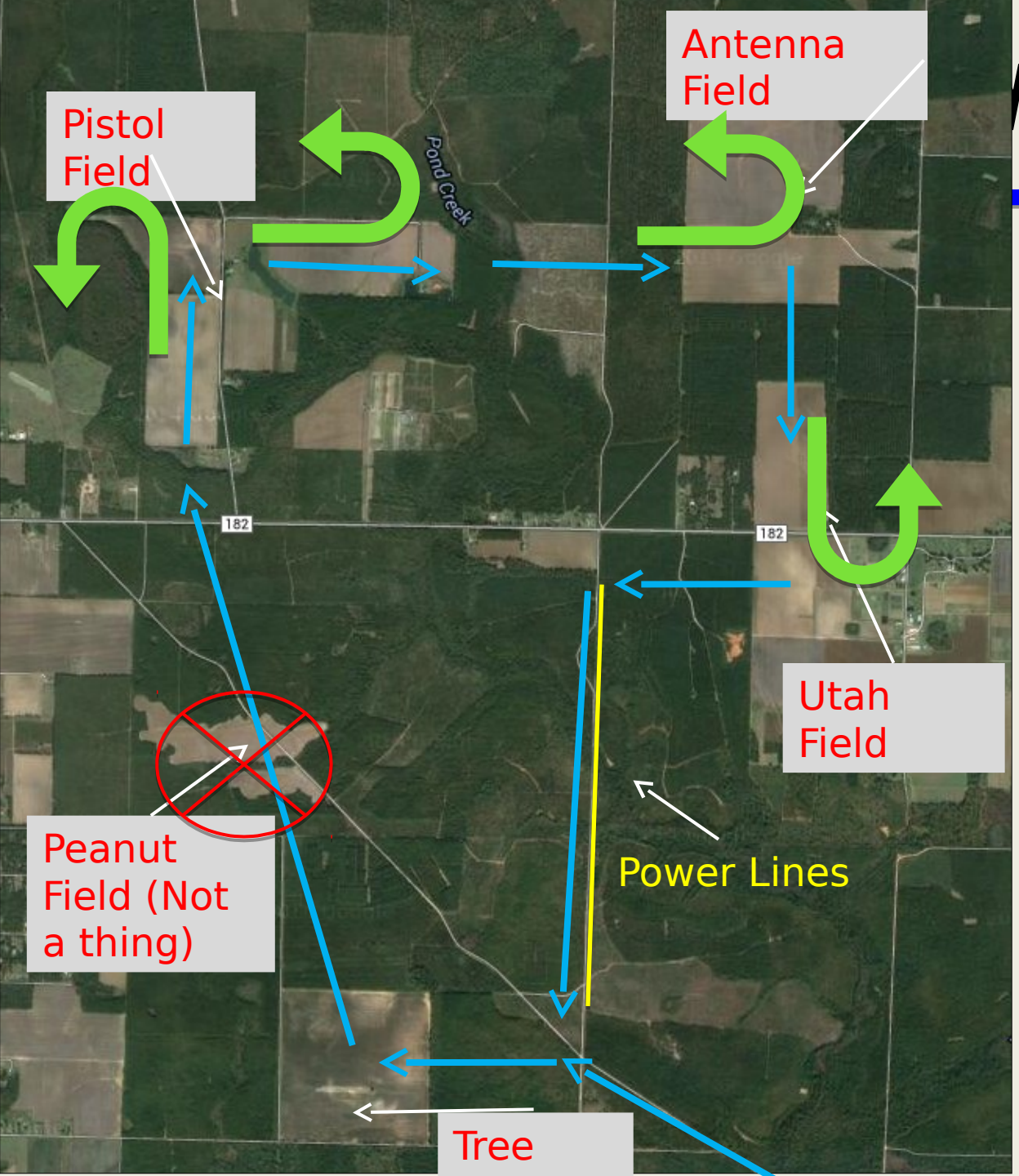
“Dropping in…”

- Aircraft shall only execute one EP to each field then move to the next in the rotation
- “Working Antenna” is not a thing

North of Tree Field

Wave-offs (power on or off – does not matter)

- Wave-offs from fields after Simulated Emergencies at Altitude shall be executed away from the flow of traffic
- Once safe lateral separation has been attained and interval ID’ed, turn to parallel but heading the opposite direction
- Re-intercept course rules from a perpendicular heading behind your interval
- Aircraft shall only execute one EP to each field then move to the next in the rotation.



Normal Flow

- Blue line – Flight at altitude
- Green arrows – Wave-off routes
- Peanut Field – Not a thing…
- Wave-offs will be to the outside of “The Loop” (to the left) in order to remain predictable

Questions?